

In all years displayed, Montana's overall (i.e. all cause) age-adjusted death rates are below or equal to those for the U.S. Montana's age-adjusted rates are also below those for the U.S. for many of the chronic diseases displayed; Montana's rates for heart disease, cancer, and nephritis (nephritis, nephrotic syndrome, and nephrosis) were lower than those for the U.S. in eight or nine of the nine years for which both Montana and U.S. values are displayed. Montana's rates for, chronic liver disease and cirrhosis were lower than U.S. rates in all of the ICD-9 years but the same or higher in the ICD-10 years. Montana's rates for one traumatic cause of death, homicide and legal intervention, were lower than the corresponding U.S. rates in all years displayed. These underlying causes accounted for slightly less than half (46.8%) of all deaths of Montanans in 2003.

Montana's rates for cerebrovascular disease, pneumonia and influenza, and diabetes showed inconsistent relationships with the U.S. rates, with the trend lines crossing each other more than once in this period. Diabetes rates for Montana were higher than those for the U.S. in two of the five years in which underlying cause of death was determined with the rules of ICD-9 and one (possibly, two) times there-after. The U.S. diabetes rate seems relatively unaffected by the conversion to ICD-10. The Montana diabetes rate appears less stable before and after the conversion, but this may be the result of a change in a relatively small number of deaths from diabetes and have nothing to do with the revision of ICD.

Montana's rates for cerebrovascular disease were higher than those of the U.S. for three of the five years in which ICD-9 coding rules were used. With the exception of one year's rate, Montana and U.S. rates for this cause have been nearly identical under ICD-10 coding rules.

The state rates for chronic lower respiratory disease (C.L.R.D.)--which includes chronic and unspecified bronchitis, emphysema, and asthma--were higher than those for the U.S. in all years displayed. Revision of ICD did not change this relationship. Montana's Alzheimer's rate was virtually the same as that of the U.S. in 1997, but higher in all other years. Revision of ICD substantially increased Alzheimer's rate for both Montana and U.S.

Montana's rates for most unintentional traumatic causes of death; accident (both motor vehicle and non-motor- vehicle) and suicide rates were higher than those for the nation in all years displayed, irrespective of the ICD coding rules. While U.S. death rates for accidents seem stable, Montana's are increasing for both motor vehicle and perhaps for non-motor- vehicle accidents. Neither the accident nor the suicide rates appear to have been affected greatly by ICD revision.

These graphs show secular (i.e. long-term, despite occasional instability in the short-term) reductions in Montana's age-adjusted death rates for specific chronic diseases such as heart disease, cancer, pneumonia and influenza, and cerebrovascular disease. The rates for Alzheimer's, chronic liver disease and cirrhosis, and nephritis are on the increase, although the trends are somewhat inconsistent and, in some cases, possibly affected by the conversion of ICD coding.

The rates for C.L.R.D and suicide are apparently neither increasing nor decreasing consistently.

For both Montana and the U.S., age-adjusted death rates for nephritis and Alzheimer's increased after the introduction of ICD-10, suggesting that, to some degree, the increase reflects conversion to the new revision of ICD. The rate for pneumonia and influenza decreased after the conversion to ICD-10. These results are consistent with the comparability ratios for these causes discussed earlier. (See **Figure 1** in the Technical Overview.)

## AGE, SEX, AND RACE

Cause of death is age, sex, and race-dependent. Males were more likely to die of many of the leading causes of death listed in **Table S-7**. While 1,096 males died of heart disease, only 878 females did so. Cancer claimed 961 males and only 877 females. More males than females also died of diabetes, chronic lower respiratory diseases, chronic liver disease and cirrhosis. The larger difference between males and females, however, was seen in deaths from traumatic causes. Over seventy percent more males than females died of accidents (327 as opposed to 188). Over eighty percent more males than females died of homicide (24 as opposed to 13). Finally, nearly four and a half times as many males as females committed suicide (146 as opposed to 33).

It is also instructive that slightly more than a quarter of the Native Americans who died in 2003 died of one of the traumatic causes, while less than ten percent (8.65%) of white were claimed by these causes. Accidents caused nearly 20 percent of Native American deaths but only a little more than six percent of the deaths of whites. Suicide was the underlying cause for 2.74% of Native American deaths but only 2.12% of the deaths of whites. Homicide claimed 2.74% of the Native Americans who died in 2003, but only 0.44% of the whites.

Accidents were more likely to cause the deaths of the young than the old. They accounted for 16% of the deaths of those 14 years of age or younger, 60.4% of the deaths of those between the ages of 15 and 24, and 39.2% of those between the ages of 25 and 34 years. By contrast, accidents accounted for 6.1% of the deaths in the entire population. Suicide was the cause of death for 16.2% of the decedents between the ages of 15 and 44. By contrast, it was the cause of death for only 2.1% of decedents of all ages. Of the suicide victims, 81.6% were males. Suicides using firearms, 88% were males compared to suicides by self-poisoning where 64% were females.

For decedents more than 34 years of age, chronic diseases—particularly heart disease and cancer—increased in influence. Cancer, followed by heart disease, was the leading cause of death for all of the age categories between 45 and 74 years. However, for the age categories 75 and older, heart disease was the leading cause, with cancer second.

For the all-age category, heart disease (23.4 %) was the leading cause of death, followed closely by cancer (21.8%). Chronic lower respiratory disease (C.L.R.D.) at 7%, Cerebrovascular disease (6.8 %) and accidents (6.1%) were a distant third, fourth, and fifth, respectively. Frequencies and crude rates for the ten leading causes of death are shown for Montana and each of its counties in **Table S-6**.

**Figure 47** displays frequencies of death for Montanans in 2003 by race, sex, and selected major causes of death.

**Figure 47**

**FREQUENCY OF DEATH BY SELECTED CAUSE, RACE, AND SEX  
MONTANA RESIDENTS, 2003**

<b>Cause of Death</b>	<b>All Races Male</b>	<b>All Races Female</b>	<b>White Male</b>	<b>White Female</b>	<b>Native American Male</b>	<b>Native American Female</b>
<b>All Causes</b>	4,332	4,113	3,649	3,558	231	171
<b>Heart Disease</b>	1,096	878	943	788	37	28
<b>Cancer</b>	961	877	842	754	24	34
<b>Diabetes</b>	138	125	107	103	16	11
<b>Pneumonia &amp; Influenza</b>	109	148	93	134	4	5
<b>Chronic Lower Respiratory Disease</b>	298	289	260	260	12	5
<b>Chronic Liver Disease &amp; Cirrhosis</b>	67	44	53	28	7	11
<b>Perinatal Causes</b>	8	15	6	10	0	2
<b>Accidents</b>	327	188	225	139	60	20
<b>Suicide</b>	146	33	131	29	9	2
<b>Homicide</b>	24	13	13	6	7	4
<b>Other Causes</b>	1,158	1,503	976	1,307	55	49

As was mentioned in the discussion of race on page six, the Montana death certificate, beginning in 2003, records race in greater detail than in the past. Not only are more racial categories used, but informants are also specifically asked to name all of the several classifications that may apply to a decedent. The result of this additional prompting has been a much greater proportion of decedents classified by two or more races. This different manner of counting deaths by race could very possibly alter the outcome of mortality ratios calculated for the various races and affect apparent racial disparities. **Figure 48** displays the distribution of decedents by race for the last decade.

**Figure 48**

**FREQUENCY AND PERCENT DISTRIBUTION OF DEATH  
BY RACE AND SEX  
MONTANA RESIDENTS, 1994-2003**

<b>RACE</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>ALL RACES</b>	7,331	7,614	7,686	7,730	7,960	8,081	8,071	8,252	8,473	8,445
<b>WHITE</b>	6,968	7,225	7,340	7,374	7,590	7,617	7,668	7,839	8,003	7,207
<b>Percent</b>	95.0	94.9	95.5	95.4	95.4	94.3	95.0	95.0	94.5	85.3
<b>NATIVE AMERICAN</b>	331	360	316	333	345	429	366	385	433	402
<b>Percent</b>	4.5	4.7	4.1	4.3	4.3	5.3	4.5	4.7	5.1	4.8
<b>MULTI-RACE</b>	1	1	0	1	1	0	0	0	1	791
<b>Percent</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4
<b>OTHER SINGLE RACE</b>	28	26	27	21	20	32	36	25	34	41
<b>Percent</b>	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.5
<b>UNKNOWN</b>	3	2	3	1	4	3	1	3	2	4
<b>Percent</b>	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0